

CLAIMS

We claim:

1 1. A method of controlling rate distortion in a video compression and
2 encoding system, said method comprising:
3 selecting a distortion value D near a desired distortion value;
4 determining a quantizer value Q using said distortion value D;
5 calculating a Lagrange multiplier lambda using said quantizer value Q; and
6 encoding a pixelblock using said Lagrange multiplier lambda and said quantizer
7 value Q.

1 2. The method as claimed in claim 1, said method further comprising:
2 increasing said Lagrange multiplier lambda when a buffer exceeds an overflow
3 threshold value and increasing said quantizer value Q if said Lagrange
4 multiplier lambda exceeds a maximum lambda threshold; and
5 decreasing said Lagrange multiplier lambda when a buffer falls below an
6 undererflow threshold value and decreasing said quantizer value Q if said
7 Lagrange multiplier lambda falls below a minimum lambda threshold.

1 3. The method as claimed in claim 2, said method further comprising:
2 recalculating said Lagrange multiplier lambda if said quantizer value Q is
3 adjusted.

1 4. The method as claimed in claim 2, said method further comprising
2 wherein said Lagrange multiplier λ is increased or decreased by an amount
3 dependent upon said quantizer value Q .

1 5. The method as claimed in claim 1, said method further comprising:
2 calculating a visual mask value M ; and
3 increasing said Lagrange multiplier λ when said visual mask value M times
4 said Lagrange multiplier λ is less than a maximum threshold for said
5 Lagrange multiplier λ .

1 6. The method as claimed in claim 5 wherein said maximum
2 threshold for said Lagrange multiplier λ is dependent upon said quantizer value Q .

1 7. The method as claimed in claim 5, said method further comprising:
2 increasing said Lagrange multiplier λ when a buffer exceeds an overflow
3 threshold value and increasing said quantizer value Q if said Lagrange
4 multiplier λ exceeds a maximum λ threshold; and
5 decreasing said Lagrange multiplier λ when a buffer falls below an
6 undererflow threshold value and decreasing said quantizer value Q if said
7 Lagrange multiplier λ falls below a minimum λ threshold.

1 8. The method as claimed in claim 7, said method further comprising:
2 recalculating said Lagrange multiplier λ if said quantizer value Q is
3 adjusted.

1 9. A computer-readable medium, said computer-readable medium
2 containing a set of computer instructions for implementing a method of controlling rate
3 distortion in a video compression and encoding system with the following steps:
4 selecting a distortion value D near a desired distortion value;
5 determining a quantizer value Q using said distortion value D ;
6 calculating a Lagrange multiplier λ using said quantizer value Q ; and
7 encoding a pixelblock using said Lagrange multiplier λ and said quantizer
8 value Q .

1 10. The computer-readable medium as claimed in claim 9 wherein said
2 set of computer instructions further implement the steps of:
3 increasing said Lagrange multiplier λ when a buffer exceeds an overflow
4 threshold value and increasing said quantizer value Q if said Lagrange
5 multiplier λ exceeds a maximum λ threshold; and
6 decreasing said Lagrange multiplier λ when a buffer falls below an
7 undererflow threshold value and decreasing said quantizer value Q if said
8 Lagrange multiplier λ falls below a minimum λ threshold.

1 11. The computer-readable medium as claimed in claim 10 wherein
2 said set of computer instructions further implement the steps of:
3 recalculating said Lagrange multiplier λ if said quantizer value Q is
4 adjusted.

1 12. The computer-readable medium as claimed in claim 10 wherein
2 said Lagrange multiplier λ is increased or decreased by an amount dependent upon
3 said quantizer value Q .

1 13. The computer-readable medium as claimed in claim 9 wherein said
2 set of computer instructions further implement the steps of:
3 calculating a visual mask value M ; and
4 increasing said Lagrange multiplier λ when said visual mask value M times
5 said Lagrange multiplier λ is less than a maximum threshold for said
6 Lagrange multiplier λ .

1 14. The computer-readable medium as claimed in claim 13 wherein
2 said maximum threshold for said Lagrange multiplier λ is dependent upon said
3 quantizer value Q .

1 15. The computer-readable medium as claimed in claim 13 wherein
2 said set of computer instructions further implement the steps of:
3 increasing said Lagrange multiplier λ when a buffer exceeds an overflow
4 threshold value and increasing said quantizer value Q if said Lagrange
5 multiplier λ exceeds a maximum λ threshold; and
6 decreasing said Lagrange multiplier λ when a buffer falls below an
7 undererflow threshold value and decreasing said quantizer value Q if said
8 Lagrange multiplier λ falls below a minimum λ threshold.

1 16. The computer-readable medium as claimed in claim 15 wherein
2 said set of computer instructions further implement the steps of:
3 recalculating said Lagrange multiplier λ if said quantizer value Q is
4 adjusted.